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EXAMINER	
REDDING, THOMAS M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/816,317	GALLAGHER, ANDREW C.
	Examiner	Art Unit
	Thomas M. Redding	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 8/3/2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 03 August 2007 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This action is Final. Claims 1-9 are currently pending. Applicant's response received on 8/3/2007 is fully considered herein and is not persuasive.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **(Original grounds)** Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotlikov et al. (US 2003/0012453 A1) in combination with Shimazu et al. (US005724454A).

3. Applicant has amended independent claims 1, 2 and 9 in each case inserting the single word "automatically" in specific steps of each method.

> **1. (Currently Amended) A method of detecting and using hanging wire pixels in a digital image, having pixels comprising:**
>
> **(a) <u>automatically</u> identifying pixels from the digital color image representing one or more sky regions;**
>
> **(b) <u>automatically</u> detecting pixels representing hanging wire regions in the sky regions; and**
>
> **(c) using the detected hanging wire pixels to determine the orientation of the digital image**

or to replace such hanging wire pixels.

2. (Currently Amended) A method of improving a digital color image having pixels, the method comprising:
(a) automatically identifying pixels from the digital color image representing one or more sky regions;

(b) automatically detecting sky occlusion regions by examining the sky regions;

(c) developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color; and

(d) using the model to operate on the digital color image to replace the values of pixels from the sky occlusion regions with values predicted by the model.

9. (Currently amended) A method of removing hanging wire region pixels from detected sky regions in a digital color image having pixels, the method comprising:
(a) automatically identifying pixels from the digital color image representing one or more sky regions;

(b) automatically detecting hanging wire regions by examining the sky regions;

(c) developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color; and

(d) using the model to operate on the digital color image to replace the values of digital color image pixels associated with the hanging wire regions with values predicted by the model to thereby remove the hanging wire region pixels.

In each instance, and for the claims depending (3 - 6), the addition of the word "automatically" does not actually add a limitation to the step, so the original rejection is maintained. There are two ways to define limits in a claim:

> **For processes, the claim limitations will define steps or acts to be performed. For products, the claim limitations will define discrete physical structures or materials. (MPEP §2106 II C, 2nd paragraph)**

Since the mere addition of the word "automatically" does not detail what steps are being introduced to each process to achieve this effect, the word carries no useful weight. The actions of an operator who "automatically" selects a region in an image in response to a program prompt would satisfy the requirement.

Further, it is obvious and well within the abilities of one of ordinary skill in the art to automate manual steps in a program. If the word "automatically were to be given weight, the claims are still obvious under additional grounds mandated by the amendment.

4. **(New grounds)** Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotlikov et al. (US 2003/0012453 A1) and Shimazu et al. (US005724454A) in combination with Ashton (US 2004/0066956).

(New 103(a) rejection) Regarding amended claim 1, Kotlikov teaches [a] method of detecting thin occlusion pixels in a digital image, comprising:

identifying pixels from the digital color image representing one or more background/non-object regions ("classification of image data into object and non-object regions", Kotlikov, paragraph 25, line 2);

detecting pixels representing object regions in the background/non-object regions ("non-object regions", Kotlikov, paragraph 25, line 3); and

using the detected non-object pixels to replace the object pixels ("amending the object data to more closely resemble the data of non-object regions", Kotlikov, paragraph 24, line 1).

While Kotlikov describes the objects to be replaced as a "scratch or other defect in the image" at paragraph 005, Kotlikov does not expressly teach that his non-object regions are sky regions and his object regions are hanging wire regions.

Shimazu, working the same field of endeavor of color image correction, does describe replacing hanging wire pixels in sky regions ("elimination of a undesirable image area in an image, for example, an electric wire running across the blue sky", Shimazu, column 26, line 2.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the defect removal method of Kotlikov to solve the problem identified by Shimazu of removing the electric wire running across the blue sky in order to effect the "elimination of a undesirable image area in an image" (Shimazu, column 26, line 2).

The combination of Kotlikov and Shimazu does not explicitly teach

(a) <u>automatically</u> identifying pixels and

(b) <u>automatically</u> detecting pixels

Ashton, working in a related problem solving area of region identification through image analysis does teach:

(a) automatically identifying pixels and

(b) automatically detecting pixels

("Step 106: Identification of an exemplar using manual tracing, semi-automated tracing, statistical region growth, or geometrically constrained region growth", Ashton paragraph 47, Ashton's system provides for either manually or automatically identifying a set of pixels as an object in an image. He teaches the concept of automating a manual process).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to apply the teaching of automating a manual operator selection step with the image correction system of the combination of Kotlikov and Shimazu in order to avoid the limitations of manual methods ("it is both tedious and time consuming", Ashton paragraph 4) and to avoid "results that are subject to both error and bias" (Ashton paragraph 4).

Summary of Applicant's Remarks: Claim 1 has been modified to automatically identify sky region pixels and hanging wire regions. Kotlikov does not teach determining image orientation from hanging wires and sky regions.

Shimazu teaches a contour extraction method for correcting color that would not be useful for detecting or removing hanging wires.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claim 1, and an alternate 103(a) rejection has

been presented above. As far as the combination of Kotlikov and Shimazu not teaching determining image orientation from handing wires and sky regions, this limitation in claim 1 is stated as an alternative, i.e. "c) using the detected hanging wire pixels to determine the orientation of the digital image **or** to replace such hanging wire pixels". The rejection as stated addresses the second stated option of replacing the hanging wire pixels.

The Shimazu reference is used to explain an incentive for applying the system of Kotlikov to remove hidden wires. It would have been obvious at the time the invention was made to one of ordinary skill in the art to use the defect removal method of Kotlikov to solve the problem identified by Shimazu of removing the electric wire running across the blue sky in order to effect the "elimination of a undesirable image area in an image" (Shimazu, column 26, line 2). The functional elements of Shimazu are not actually part of the combination.

The original rejection is maintained and an alternate 103(a) rejection is provided above.

(New 103(a) rejection) Regarding claim 2, the Kotlikov-Shimazu and Ashton combination teaches the elements common with claim 1 as described above. It also teaches developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color ("the pixel may be replaced by the average or weighted average of pixels in its neighborhood",

Kotlikov, paragraph 50, line 3; and using the model to operate on the digital color image to replace the values of pixels from the sky occlusion regions with values predicted by the model ("the pixel may be replaced by the average or weighted average of pixels in its neighborhood", Kotlikov, paragraph 50, line 2).

Summary of Applicant's Remarks: Claim 2 has been amended to automatically identify pixels in the sky region and pixels in occlusions. The combination of Kotlikov and Shimazu does not automatically identify sky regions and sky occlusions. The combination also does not replace sky occlusion regions.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claim 2, and an alternate 103(a) rejection has been presented above. Kotlikov does disclose replacing undesired pixels ("After they have been defined, the defect or object pixels may be corrected by any method known in the art. For example, the pixel may be replaced by the average or weighted average of pixels in its neighborhood, preferably excluding other defect pixels", Kotlikov, paragraph 50). In this context the pixels that make up the sky occlusion region are "defect" or "object" pixels and are replaced. As the pixels making up the region are replaced, then the region itself is replaced.

The original rejection is maintained and an alternate 103(a) rejection is presented above.

(New 103(a) rejection) Regarding claim 3, the Kotlikov-Shimazu and Ashton combination teaches all the elements of claim 2 and further teaches wherein the model is a two-dimensional polynomial of the pixel position in the digital color image ("The defect may also be removed by interpolation such as with linear interpolation or quadratic interpolation", Kotlikov, paragraph 50, line 16).

(New 103(a) rejection) Regarding claim 4, the Kotlikov-Shimazu and Ashton combination teaches [t]he method of claim 3 wherein the polynomial is a second-order polynomial ("The defect may also be removed by interpolation such as with linear interpolation or quadratic interpolation", Kotlikov, paragraph 50, line 16).

Summary of Applicant's Remarks: Claims 3 and 4 depend from claim 2 has been amended to automatically identify pixels in the sky region and pixels in occlusions.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claim 2.

The original rejections are maintained and alternate 103(a) rejections have been presented above.

(New 103(a) rejection) Regarding claim 9, the Kotlikov-Shimazu and Ashton combination teaches [a] method of removing hanging wire region pixels from detected sky regions in a digital color image having pixels, the method comprising:

All the elements that are common with claim 1 are described in the claim 1 section above. It also teaches: developing a model based on the identified sky pixels, wherein such model is a mathematical function that has inputs of pixel position and outputs of color ("the pixel may be replaced by the average or weighted average of pixels in its neighborhood", Kotlikov, paragraph 50, line 3; and using the model to operate on the digital color image to replace the values of digital color image pixels associated with the hanging wire regions with values predicted by the model to thereby remove the hanging wire region pixels ("the pixel may be replaced by the average or weighted average of pixels in its neighborhood", Kotlikov, paragraph 50, line 3).

Summary of Applicant's Remarks: Claim 9 has been amended to automatically identify pixels in the sky region and pixels in occlusions. The combination of Kotlikov and Shimazu does not automatically identify sky regions and sky occlusions. Reasoning similar to argument for claim 1.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claims 1 and 2 is discussed above and also applies to claim 9.

The original rejection is maintained. Additionally an alternate 103(a) rejection has been presented above.

5. **(Original grounds)** Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kotlikov et al. (US 20030012453 A1) and Shimazu et al. (US005724454A) in combination with Luo et al. (US 20030053686A1).

6. **(New grounds)** Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kotlikov et al. (US 2003/0012453 A1). Shimazu et al. (US005724454A) and Ashton (US 2004/0066956) in combination with Luo et al. (US 20030053686A1).

(New 103(a) rejection) Regarding claim 5, the Kotlikov Shimazu and Ashton combination teaches all the elements that are in common with claims 1 and 2.

The Kotlikov-Shimazu and Ashton combination does not teach (iii) using the model to operate on the digital color image to classify additional pixels not included in the initial sky region as sky.

Luo, working in a similar problem solving area of color image segmentation, does teach using the model to operate on the digital color image to classify additional pixels not included in the initial sky region as sky ("an inventive region growing process is used

to fill in holes and extend boundaries of the candidate cloudy sky regions." Luo '686, paragraph 36).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to further combine the combination of Kotlikov, Shimazu and Ashton with the region growing technique of Luo'686 in order to deal with regions where " 'marginal' pixels may have sky-color and texture belief values that barely fail the global threshold but are close enough to the belief values of the neighboring pixels that have passed the initial global threshold", Luo'686, paragraph 36.

Summary of Applicant's Remarks: Claim 5 depends on claim 2, and Lou initially classifies pixels as a sky region, then further refines this estimate by adding more pixels resulting in a larger region.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claim 2 is discussed above and also applies to claim 5. Applicant's observation that "Luo et al describes a model that initially classifies pixels of sky and then further adds to that initial sky region more pixels so that result is a larger sky region than what was originally classified" emphasizes the agreement with claim 5 which stated "(i) identifying pixels from the digital color image representing an initial sky region;" and "(iii) and using the model to operate on the digital color image to classify additional pixels not included in the initial sky region as sky."

The original rejection is maintained. Additionally an alternate 103(a) rejection has been presented above.

7. **(Original grounds)** Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luo (US 20030152289A1) and Miceli et al. (US 20030128149A1).

Applicant has amended independent claim 7 inserting the single word "automatically" in specific steps of the method.

> **7. (Currently amended) A method of determining the orientation of a digital color image having pixels, the method comprising:**
>
> **(a) automatically identifying pixels from the digital color image representing one or more sky regions;**
>
> **(b) automatically detecting one or more hanging wire regions by examining the sky regions; and**
>
> **(c) analyzing the hanging wire regions to determine the orientation of the digital color image.**

8. **(New grounds)** Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luo (US 20030152289A1) and Miceli et al. (US 20030128149A1) in combination with Ashton (US 2004/0066956).

(New 103(a) rejection) Regarding claim 7, Luo teaches [a] method of determining the orientation of a digital color image ("a method for determining the orientation of an image", Luo'289, paragraph 1) having pixels, the method comprising: identifying pixels from the digital color image representing one or more sky regions (Luo'289, Fig. 1, reference 221); detecting one or more non-sky regions by examining the sky regions (Luo'289, Fig. 7, "Other subject matters"); and analyzing the non-sky regions to determine the orientation of the digital color image (Luo'289, Fig. 7, Orientation from Semantic Object).

Luo'289 does not expressly teach using hanging wire regions to determine image orientation, but he does teach that "image orientation can be determined from a plurality of semantic objects, including human faces, sky, text, sign, grass, snow field, open water, or any other semantic objects that appear frequently in images, have strong orientations by themselves, have orientations strongly correlated with image orientation, and last but not least, can be detected with reasonably high accuracy automatically." (Luo'289, paragraph 28).

Miceli, working in a similar problem solving area of analysis of overhead line geometries, teaches that overhead lines do have a strong orientation ("The simplest features of the geometrical configurations are illustrated with FIG. 1(c), which shows an overhead line 22 suspended between two poles 10. The weight of the overhead line 22 causes it to sag in a characteristic catenary shape, with the maximal sag from the points of suspension occurring midway between the poles 10." Miceli, paragraph 39).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to apply the method of Luo to make use of the features of power lines, in particular including hanging wires with their characteristic catenary sag as described by Miceli, as the basis for a semantic object detector as described by Luo ("... semantic object detectors can be used to produce alternative or additional estimates of the image orientation." Luo, paragraph 25).

Such a modification would have been obvious to one of ordinary skill in the art because power lines are a ubiquitous feature of everyday urban (and even rural) landscapes ("The power-utility-system infrastructure alone in North America includes approximately 150,000,000 wooden pole structures used to support overhead lines." Miceli, paragraph 3). Power lines also have a strong gravitational orientation as described by Miceli, just as the road "signs" and other features described by Luo. That is, Luo states, "Text and signs appear in many pictures, e.g., street scenes, shops, etc. In general, it is unlikely that signs and text are placed sideways or upside down ..." at paragraph 006. In like manner, power lines have a definite orientation with respect to gravity, and it is impossible that they would be hung "up-side-down", making them even more reliable than road signs. Such a strong gravitational orientation coupled with their prevalence renders a power line a reliable feature for determining orientation. One of ordinary skill and creativity in the art would clearly recognize this, even in the absence of the teaching of Miceli.

The combination of Luo and Miceli does not explicitly teach

(a) automatically identifying pixels and

(b) automatically detecting pixels

Ashton, working in a related problem solving area of region identification through image analysis does teach:

(a) automatically identifying pixels and

(b) automatically detecting pixels

("Step 106: Identification of an exemplar using manual tracing, semi-automated tracing, statistical region growth, or geometrically constrained region growth", Ashton paragraph 47, Ashton's system provides for either manually or automatically identifying a set of pixels as an object in an image. He teaches the concept of automating a manual process).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to apply the teaching of automating a manual operator selection step with the image correction system of the combination of Luo and Miceli in order to avoid the limitations of manual methods ("it is both tedious and time consuming", Ashton paragraph 4) and to avoid "results that are subject to both error and bias" (Ashton paragraph 4).

(New 103(a) rejection) Regarding claim 8, the combination of Luo, Miceli and Ashton teaches [t]he method of claim 7 wherein analyzing the hanging wire regions further comprises: determining the direction of gravity by examining the location of pixels of the

hanging wire region with respect to the endpoints of the hanging wire region ("The weight of the overhead line 22 causes it to sag in a characteristic catenary shape, with the maximal sag from the points of suspension occurring midway between the poles 10." Miceli, paragraph 39).

Summary of Applicant's Remarks: Claims 7 and 8 have been amended in a similar fashion to claim 1. Luo'289 is asserted to be unavailable under 35 USC 103(c). Applicant does not understand relevance of Miceli who uses radar signals.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claims 1 is discussed above and also applies to claim 7.

> **(1) Subject matter developed by another person, which qualifies as prior art <u>only</u> under one or more of <u>subsections (e), (f), and (g) of section 102</u> of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person. (MPEP §103(c)(1))**

Luo'289 does qualify as prior art under 35 USC 102<u>(a)</u> and is therefore not precluded by 35 USC 103(c) and is an applicable reference. The teaching of Miceli is used merely to point out physical characteristics of hanging wires which one of ordinary skill in the art would be aware of.

The original rejections for claims 7 and 8 are maintained, and alternate 103(a) rejections have been presented above as well.

9. **(Original grounds)** Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kotlikov et al. (US 2003/0012453 A1) and Shimazu et al. (US005724454A) in combination with the combination of Luo (US 20030152289A1) and Miceli et al. (US 20030128149A1).

10. **(New 103(a) rejection)** Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kotlikov et al. (US 2003/0012453 A1), Shimazu et al. (US005724454A) and Ashton (US 2004/0066956) in combination with the combination of Luo (US 20030152289A1) and Miceli et al. (US 20030128149A1).

Regarding claim 6, the Kotlikov, Shimazu and Ashton combination teaches the elements of claim 2 as described above. The combination of Kotlikov, Shimazu and Ashton does not teach determining when sky occlusion regions are formed by hanging wires and determining the orientation of the image based on the detected hanging wire regions.

The combination of Luo'289 and Miceli does teach determining when sky occlusion regions are formed by hanging wires and determining the orientation of the image based on the detected hanging wire regions (see rejection above for claim 7).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to merge the hanging wire removal technique of the combination of the Kotlikov, Shimazu and Ashton with the image orientation method of the Luo'289 and Miceli combination in order to avoid mis-oriented images since "it is aggravating if some of the images are displayed upside-down or sideways." (Luo'289, paragraph 3).

Summary of Applicant's Remarks: Claims 6 depends from claim 2, which has been amended to automatically identify pixels in the sky region and pixels in occlusions.

Examiner's Response: The problem with the lack of limitation introduced by the addition of the term "automatically" into claim 2.

The original rejection is maintained and an alternate 103(a) rejection has been presented above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Redding whose telephone number is (571) 270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TMR/

BRIAN WERNER
SUPERVISORY PATENT EXAMINER